

Muscle Strength/Physical Function (June 2002)

MEC Examination

Description

An observed timed 20-foot walk was used to assess functional limitations.

Muscle strength was assessed by measuring the isokinetic strength of the knee extensors (quadriceps).

Target Sample and Exclusion Criteria

Examinees 50 years of age and older were eligible for this component.

Examinees who had a history of myocardial infarction within the past six weeks, chest or abdominal surgery within the past three weeks, knee surgery or knee replacement surgery, severe back pain, a history of brain aneurysm or stroke were excluded from the muscle strength exam. Examinees who are not able to walk alone without holding onto someone are excluded from the timed walk. The use of a walker or cane is permitted for the timed walk.

Data Collection Methods

A Kin Com MP dynamometer manufactured by Chattanooga Group, Inc., Chattanooga, TN was used to evaluate knee extensor strength. The outcome measurement is peak torque (Newton/meters) of the quadriceps at one speed (60 degrees/second). A measured walk test track was set up in the MEC for the measured walk component. A 20 feet long test track area was set up in a corridor of the MEC. Adhesive tape strips on the floor indicated the start and stop points for the measured walk component.

Examination Protocol

Six muscle strength measurements are obtained: three warm-up/ learning measurements and three test measurements for the muscle strength component record.

The 20-foot walk was timed using a hand-held stopwatch. The examinee is asked to walk at their usual pace. Start and stop times are defined as follows:

START TIME: When the survey participant's first foot touches the floor across the start line.

STOP TIME: When the survey participant's foot touches the floor across the finish line.

Staff

Certified health technicians conduct the examinations. All health technicians receive intensive training on the NHANES examination protocols.

Quality Control Procedures

The quality control procedures include site visits with expert consultants and NCHS and contractor staff; implementation of a continuous quality assurance plan that includes a procedural checklist; and continuous data review to identify systematic error. The NHANES Quality Control Manual includes a more detailed description of the quality control procedures that were implemented for both components.

Data Processing and Preparation

Although six muscle strength trials are performed only the highest peak force is reported in the data file. The following algorithm was used: For examinee who had 4 or more trials, select one peak force from trials 4-6. If fewer than 4 trials were completed, select the highest peak force from the trials that were completed.